WE CLAIM:

1. A packaged micromirror assembly, comprising:

a mirror device having a frame portion, a mirror portion, and a plurality of hinges;

at least one actuation element attached to the mirror portion; and

a mounting having a recess, the mirror device coupled to the mounting in overlying relation to the recess to enable movement of the mirror portion.

2. The micromirror assembly of Claim 1 wherein the mirror device is formed of a single piece of crystalline material.

3. The micromirror assembly of Claim 1 wherein the mounting is a printed circuit board.

4. The micromirror assembly of Claim 1 further comprising a plurality of drivers, in proximity to the at least one actuation element, for orienting the mirror portion.

5. The micromirror assembly of Claim 2 further comprising a plurality of drivers, in proximity to the at least one actuation element, for orienting the mirror portion.

6. The micromirror assembly of Claim 3 further comprising a plurality of drivers, in proximity to the at least one actuation element, for orienting the mirror portion.

7. A packaged micromirror assembly as recited in claim 1, wherein the actuating element is a permanent magnet.

8. A packaged micromirror assembly as recited in claim 7, wherein the driver is an electromagnetic coil.

9. A packaged micromirror assembly as recited in claim 1, wherein the actuating element is an electrostatic plate, and the driver is an electrostatic plate.

10. A packaged micromirror assembly as recited in Claim 1 further comprising a gimbals portion

11. The assembly of claim 1, further comprising:

a sensor, disposed beneath the mirror device and connected to the mounting, for detecting the orientation of the mirror.

12. The assembly of claim 8, wherein the sensor comprises:

at least one light source for illuminating an underside of the mirror surface; and

at least one detector for detecting light imparted by the at least one light source and reflected from the underside of the mirror surface;

wherein the combination of the at least one light source and at least one detector provide a plurality of reflection paths over which the intensity of reflected light is measured.

13. The assembly of Claim 9, further comprising:

a plurality of detectors, angularly arranged under the mirror surface, for detecting the intensity of light from the light source after reflection from the underside of the mirror surface.

14. The assembly of Claim 11, wherein the sensor comprises:

a plurality of light sources, angularly arranged under the mirror surface, each for illuminating an underside of the mirror surface; and

a detector, located coaxially with the mirror surface for detecting the intensity of light from each of the plurality of light sources after reflection from the underside of the mirror surface.

15. The micromirror assembly of Claim 3 wherein the recess on the printed circuit board is formed by a spacer for spacing the mirror device from the printed circuit board, the spacing determining the maximum rotation of the mirror portion.

16. In a data transmission system, a data transmitter coupled to a data source for generating data to be communicated to a receiver comprising:

a light source, coupled to the data source, for generating a modulated directed light beam; and

a micromirror assembly for directing the directed light beam at the receiver, comprising:

a mirror device, the mirror device having a frame, a mirror surface, and a plurality of hinges;

at least one actuation element attached to the mirror device;

a mounting having a recess, the mirror device coupled to the mounting in overlying relation to the recess to enable movement of the mirror surface; and

a plurality of drivers, in proximity to the at least one actuation element, for orienting the mirror surface.

17. An electronic system of Claim 16, further comprising:

a sensor, disposed beneath the mirror element and connected to the printed circuit board, for detecting the orientation of the mirror.

18. The system of Claim 16, wherein the drivers are electromagnetic drivers each having a coil and the micromirror assembly further comprises control circuitry, coupled to the sensor and to the driver coils, for applying a signal to the driver coils responsive to the detected orientation of the mirror.

19. The system of Claim 17, wherein the sensor comprises:

at least one light source for illuminating an underside of the mirror surface; and

at least one detector for detecting light imparted by the at least one light source and reflected from the underside of the mirror surface;

wherein the combination of the at least one light source and at least one detector provide a plurality of reflection paths over which the intensity of reflected light is measured.

20. The system of Claim 17, wherein the sensor comprises:

a light source for illuminating an underside of the mirror surface; and

a plurality of detectors, angularly arranged under the mirror surface, for detecting the intensity of light from the light source after reflection from the underside of the mirror surface.

21. The system of claim 17, wherein the sensor comprises:

a plurality of light sources, angularly arranged under the mirror surface, each for illuminating an underside of the mirror surface; and

a detector, located coaxially with the mirror surface for detecting the intensity of light from each of the plurality of light sources after reflection from the underside of the mirror surface.

22. The micromirror assembly of Claim 16 wherein the mirror device is formed of a single piece of crystalline material.

23. The micromirror assembly of Claim 16 wherein the mounting is a printed circuit board.

24. The micromirror assembly of Claim 23 wherein the recess on the printed circuit board is formed by a spacer for spacing the mirror device from the printed circuit board, the spacing determining the maximum rotation of the mirror portion.

25. A packaged optical assembly, comprising:

an optical device having a frame portion, an optical component portion, and a plurality of hinges;

at least one actuation element attached to the optical component portion; and

a mounting having a recess, the optical device coupled to the mounting in overlying relation to the recess to enable movement of the optical component portion.